

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2005/011346

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 F16D37/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 F16D F16C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 585 092 B1 (SMITH ANTHONY L ET AL) 1 July 2003 (2003-07-01) cited in the application column 3, line 3 - column 4, line 48; figure 1	5-11, 20-22, 29-33, 35-48
Y A		23, 24, 34 1-4, 12-19, 25-28
X	US 6 318 531 B1 (USORO PATRICK BENEDICT ET AL) 20 November 2001 (2001-11-20) cited in the application column 3, line 5 - line 45; figure 1 ----- -/--	12-15, 35-37

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

30 August 2005

Date of mailing of the international search report

21. 10. 2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Topolski, J

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2005/011346

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2 870 888 A (JR. ANDREW S. GILL,) 27 January 1959 (1959-01-27) column 2, line 13 - line 72; figure 1 -----	16
X	CH 331 642 A (S. SMITH & SONS LIMITED) 31 July 1958 (1958-07-31) page 2, line 21 - page 3, line 29; figure 1 -----	34
Y	US 5 429 173 A (WANG ET AL) 4 July 1995 (1995-07-04) cited in the application column 3, line 29 - column 4, line 59 -----	23,24
Y	US 2001/021285 A1 (NAKAMURA SHIGENOBU) 13 September 2001 (2001-09-13) column 2, line 2 - line 12; figures 1,2 -----	34
Y		25-28
Y	US 5 896 964 A (JOHNSTON ET AL) 27 April 1999 (1999-04-27) cited in the application column 5, line 1 - line 16; figure 2 -----	25-28
A		38-40
A	US 5 598 908 A (YORK ET AL) 4 February 1997 (1997-02-04) claim 6; figures 2,3 -----	12-15
A	CH 329 848 A (S. SMITH & SONS LIMITED) 15 May 1958 (1958-05-15) the whole document -----	1-48
A	US 6 450 691 B1 (OKUMA KENJI ET AL) 17 September 2002 (2002-09-17) column 1, line 16 - column 2, line 8; figure 1 -----	25-28

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/011346

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1,2-4

Labyrinth seal path

2. claims: 5-11

coil assembly

3. claims: 12-15,16,41-48

rotor and/or slot design

4. claims: 17-19,20-22

sealing configuration

5. claims: 23-24

surface coating

6. claims: 25-28,29-33,34

bearing configuration

7. claims: 35-37

interior wall design

8. claims: 38-40

cooling

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2005/011346

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6585092	B1	10-07-2003	US 2003127297 A1	10-07-2003
US 6318531	B1	20-11-2001	DE 60100156 D1	08-05-2003
			DE 60100156 T2	08-01-2004
			EP 1167800 A1	02-01-2002
			JP 3423701 B2	07-07-2003
			JP 2002039218 A	06-02-2002
US 2870888	A	27-01-1959	NONE	
CH 331642	A	31-07-1958	NONE	
US 5429173	A	04-07-1995	CA 2132881 A1	21-06-1995
			EP 0659899 A1	28-06-1995
			JP 7204828 A	08-08-1995
US 2001021285	A1	13-09-2001	JP 2001323941 A	22-11-2001
US 5896964	A	27-04-1999	DE 69801076 D1	16-08-2001
			DE 69801076 T2	15-11-2001
			EP 0882903 A1	09-12-1998
US 5598908	A	04-02-1997	NONE	
CH 329848	A	15-05-1958	NONE	
US 6450691	B1	17-09-2002	JP 2001065578 A	16-03-2001
			DE 10041874 A1	05-07-2001